## **TECHNICAL CONTACTS**

| Project Title   | Technical<br>Contacts  | Phone<br>Number  | Email   |  |  |
|---|--|--|---|--|--|
| Lithography Metrology Program   |  |  |   |  |  |
| Metrology Supporting Deep<br>Ultraviolet Lithography  | J. Burnett<br>E. Benck                                       | (301) 975-2679<br>(301) 975-3697   | john.burnett@nist.gov<br>eric.benck@nist.gov  |  |  |
|   | C. Cromer<br>S. Kaplan<br>P. Shaw                            | (303) 497-5620<br>(301) 975-2336<br>(301) 975-4416                                     | cromer@boulder.nist.gov<br>simon.kaplan@nist.gov<br>ping-shine.shaw@nist.gov  |  |  |
| Metrology Supporting Extreme<br>Ultraviolet Lithography   | U. Griesmann<br>C. Tarrio                                    | (301) 975-4929<br>(301) 975-3737   | ulf.griesmann@nist.gov<br>charles.tarrio@nist.gov   |  |  |
| Polymer Photoresist Fundamentals for<br>Next-Generation Lithography                                   | V. Prabhu<br>E. Lin  | (301) 975-3657<br>(301) 975-6743   | vivek.prabhu@nist.gov<br>eric.lin@nist.gov  |  |  |
|   | Critical Dimension and Overlay Metrology Program             |  |   |  |  |
| Wafer-Level and Mask Critical<br>Dimension Metrology  | M. Cresswell M. Postek T. Vorburger R. Silver J. Villarrubia | (301) 975-2072<br>(301) 975-4525<br>(301) 975-3493<br>(301) 975-5609<br>(301) 975-3958 | michael.cresswell@nist.gov<br>michael.postek@nist.gov<br>theodore.vorburger@nist.gov<br>richard.silver@nist.gov<br>john.villarubia@nist.gov |  |  |
|   | A. Vladar J. Dagata R. Dixson R. Jones W. Wu                 | (301) 975-2399<br>(301) 975-3597<br>(301) 975-4399<br>(301) 975-4624<br>(301) 975-6839 | andras.vladar@nist.gov<br>john.dagata@nist.gov<br>ronald.dixson@nist.gov<br>ronald.jones@nist.gov<br>wen-li.wu@nist.gov                     |  |  |
| Wafer-Level and Overlay<br>Metrology  | R. Silver J. Villarrubia M. Postek T. Doiron T. Vorburger    | (301) 975-5609<br>(301) 975-3958<br>(301) 975-4525<br>(301) 975-3472<br>(301) 975-3493 | richard.silver@nist.gov<br>john.villarubia@nist.gov<br>michael.postek@nist.gov<br>theodore.doiron@nist.gov<br>theodore.vorburger@nist.gov   |  |  |
| Front-End Processing Metrology Program  |  |  |   |  |  |
| Wafer and Chuck Flatness Metrology Modeling, Measurements, and Standards for Wafer Surface Inspection | U. Griesmann T. Germer G. Mulholland                         | (301) 975-4929<br>(301) 975-2826<br>(301) 975-6695                                     | ulf.griesmann@nist.gov<br>thomas.germer@nist.gov<br>george.mulholland@nist.gov  |  |  |
| Front-End Materials<br>Characterization   | J. Suehle<br>G. Gillen                                       | (301) 975-2044<br>(301) 975-2190   | john.suehle@nist.gov<br>greg.gillen@nist.gov  |  |  |
| Chemical Metrology of Materials  Interconnect and Books in M  | C.J. Powell  | (301) 975-2534   | cedric.powell@nist.gov  |  |  |
| Atomic Layer Deposition – Process,  | J. Maslar  | (301) 975-4182   | james.maslar@nist.gov   |  |  |
| Models, and Metrology Superconformal Deposition Copper and Advanced Interconnect Materials            | D. Burgess T. Moffat D. Josell                               | (301) 975-2614<br>(301) 975-2143<br>(301) 975-5788                                     | donald.burgess@nist.gov thomas.moffat@nist.gov doniel.josell@nist.gov   |  |  |
| Nanoporous Thin-Film Metrology for Low-κ Dielectric Materials   | E. Lin   | (301) 975-6743   | daniel.josell@nist.gov<br>eric.lin@nist.gov   |  |  |
| Interconnect Materials and<br>Reliability Metrology   | M. Gaitan B. Keller M. Cresswell                             | (301) 975-2070<br>(303) 497-7651<br>(301) 975-2072                                     | michael.gaitan@nist.gov<br>keller@boulder.nist.gov<br>michael.cresswell@nist.gov  |  |  |
| Wire Bonding to Copper/Low-κ Semiconductor Devices Solders and Solderability                          | G. Harman D. Kelley M. Williams                              | (301) 975-2097<br>(301) 975-6410<br>(301) 975-6170                                     | george.harman@nist.gov<br>david.kelley@nist.gov<br>maureen.williams@nist.gov  |  |  |
| Measurements for Microelectronics   | IVI. VV IIIIailis  | (301) 7/3-01/0   | maareen.wimams(@mst.gov   |  |  |

| Project Title  | Technical<br>Contacts  | Phone<br>Number                  | Email   |  |  |
|--|------------------------|----------------------------------|---|--|--|
| Process Metrology Program  |                        |                                  |   |  |  |
| Gas Property Data and Flow   | J. Hurly               | (301) 975-2476                   | john.hurly@nist.gov                             |  |  |
| Standards for Improved Gas Delivery<br>Systems                       | R. Berg                | (301) 975-2466                   | robert.berg@nist.gov                            |  |  |
| Low Concentration of Humidity  | J. Hodges              | (301) 975-2605                   | joseph.hodges@nist.gov                          |  |  |
| Standards  | D. Ripple              | (301) 975-4801                   | dean.ripple@nist.gov                            |  |  |
|  | K. Bertness            | (303) 497-5069                   | bertness@boulder.nist.gov                       |  |  |
| Temperature Measurements and   | D. Ripple              | (301) 975-4801                   | dean.ripple@nist.gov                            |  |  |
| Standards for Rapid Semiconductor Processing                         | B. Tsai                | (301) 975-2347                   | benjamin.tsai@nist.gov                          |  |  |
| Plasma Process Metrology   | M. Sobolewski          | (301) 975-2980                   | mark.sobolewski@nist.gov                        |  |  |
| Trasma Trocess Wearingy  | E. Benck               | (301) 975-3697                   | eric.benck@nist.gov                             |  |  |
|  | K. Steffens            | (301) 975-2656                   | kristen.steffens@nist.gov                       |  |  |
| Analysis Tools and Techniques Program                                |                        |                                  |   |  |  |
| Thin-Film X-Ray Metrology for  | J. Cline               | (301) 975-5793                   | james.cline@nist.gov                            |  |  |
| Microelectronics   | D. Windover            | (301) 975-6102                   | donald.windover@nist.gov                        |  |  |
| Electron Microscope Tomography of                                    | Z. Levine              | (301) 975-5453                   | zachary.levine@nist.gov                         |  |  |
| Electronic Materials   | J. Scott               | (301) 975-4981                   | johnhenry.scott@nist.gov                        |  |  |
| High Resolution Microcalorimeter                                     | J. Ullom               | (303) 497-4408                   | ullom@boulder.nist.gov                          |  |  |
| X-Ray Spectrometer for Chemical                                      | K. Irwin               | (303) 497-5911                   | irwin@boulder.nist.gov                          |  |  |
| Analysis   | G. Hilton              | (303) 497-5679                   | hilton@boulder.nist.gov                         |  |  |
| <b>Device Design and Characterize</b>                                | zation Program         |                                  |   |  |  |
| Device Characterization and  | J. Suehle              | (301) 975-2247                   | john.suehle@nist.gov                            |  |  |
| Reliability  | M. Green               | (301) 975-8496                   | martin.green@nist.gov                           |  |  |
| Nanoelectronic Device Metrology                                      | C. Richter             | (301) 975-2082                   | curt.richter@nist.gov                           |  |  |
|  | N. Zimmerman           | (301) 975-5887                   | neil.zimmerman@nist.gov                         |  |  |
| Power Semiconductor Device<br>Metrology                              | A. Hefner              | (301) 975-2071                   | allen.hefner@nist.gov                           |  |  |
| Organic Electronics Metrology  | E. Lin                 | (301) 975-6743                   | eric.lin@nist.gov                               |  |  |
|  | J. Obrzut              | (301) 975-6845                   | jan.obrzut@nist.gov                             |  |  |
|  | E. Vogel               | (301) 975-4723                   | eric.vogel@nist.gov                             |  |  |
| NIGT A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1                           | C. Richter             | (301) 975-2082                   | curt.richter@nist.gov                           |  |  |
| NIST Advanced Measurement  | E. Vogel               | (301) 975-4723                   | eric.vogel@nist.gov                             |  |  |
| Laboratory Nanofab G. Henein (301) 975-5645   gerard.henein@nist.gov |                        |                                  |   |  |  |
| System Design and Test Metro   |                        | (201) 055 205                    |   |  |  |
| Metrology for System-on-a-Chip                                       | A. Hefner              | (301) 975-2071                   | allen.hefner@nist.gov                           |  |  |
| (SoC)  | Y. Afridi<br>M. Gaitan | (301) 975-5420                   | afridi@nist.gov<br>michael.gaitan@nist.gov      |  |  |
| BioElectronics Metrology At Speed Test of Digital Integrated         |                        | (301) 975-2070                   |   |  |  |
| At-Speed Test of Digital Integrated Circuits                         | D. Williams P. Hale    | (303) 497-3138<br>(303) 497-5367 | dylan@boulder.nist.gov<br>hale@boulder.nist.gov |  |  |
| Thermal Measurements and   | A. Hefner              | (301) 975-2071                   | Allen.hefner@nist.gov                           |  |  |
| Packaging Reliability  | A. Slifka              | (303) 497-3744                   | slifka@boulder.nist.gov                         |  |  |
| Manufacturing Support Progr  |                        |                                  | ,   |  |  |
| Factory Time Synchronization   | Y. Li                  | (301) 975-5319                   | ya-shian.li@nist.gov                            |  |  |
| Standards Development for  | K. Brady               | (301) 975-3644                   | kevin.brady@nist.gov                            |  |  |
| e-Manufacturing  |                        | ` ′                              |   |  |  |
| Engineering Chain Management in                                      | J. Messina             | (301) 975-4284                   | john.messina@nist.gov                           |  |  |
| the Semiconductor Industry   | K. Brady               | (301) 975-3644                   | kevin.brady@nist.gov                            |  |  |
| NIST/SEMATECH e-Handbook of  | W. Guthrie             | (301) 975-2854                   | willaim.guthrie@nist.gov                        |  |  |
| Statistical Methods  |                        |                                  |   |  |  |